0546

Three dimensional speckle tracking imaging: a promising tool in the assessment of hypertensive heart disease

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Introduction 3D speckle tracking imaging (3D-STI) is a new technique in the assessment of several heart diseases. We aim to delineate the effect of arterial hypertension (HTN) on left ventricle (LV) through a STI study.

Patients and Methods We studied 31 HTN patients and 30 age-matched healthy volunteers. The main exclusion criteria were atrial fibrillation, coronary artery disease, severe valvular heart diseases and liver or kidney dysfunction. Therefore, each subject underwent an echocardiogram with 3D-STI and serum NTproBNP was determined.

Results Among HTN patients, near 55% were women. Systolic and diastolic blood pressure were 149,6±17 and 89±10mmHg (vs. 119,7±7 and 77,6±6mmHg; p<0,0001). Mean LV mass was 116±19g/m^2 which was significantly higher than healthy subjects (75±18g/m^2; p<0,0001). LV hypertrophy was predominantly concentric in 23 patients.

Only 6 HTN patients had eccentric LV hypertrophy. NTproBNP was greater in HTN patients (31,3 vs. 13 ng/ml; p=0,01). 3D LV peak longitudinal strain (3D-PSLG) was lower in HTN group (–14±2 vs. –19±2; p<0,0001). PSLG was correlated significantly with age (R=0,33; p=0,009), systolic mean blood pressure (R=0,55; p<0,0001) and the mean period of HTN history (R=0,38; p=0,032). There was a significant positive correlation between 3D-PSLG and E/Ea ratio (R=0,50, p<0,0001). In the other hand, both of them LVmass and relative wall thickness (RWT) were also associated with 3D-PSLG (R=0,60 and 0,74 respectively; p<0,0001). Multivariate regression analysis showed that RWT was the only factor strongly correlated to 3D-PSLG (β=0,54; p=0,002).

Conclusion: 3D-STI is a useful technique in the assessment of hypertensive heart disease. This study highlighted the relation between LV concentric geometry (RWT) and PSLG.

The author hereby declares no conflict of interest

0422

Echocardiographic aspects of Congolese sickle cell disease heart

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Introduction The cardiovascular complications are the major prognostic factor for Sickle cell disease (SCD).

Methods This was a descriptive cross-sectional study in the cardiology department of the University Hospital of Brazzaville. 79 patients, included by drawing lots from hematology department file of University Hospital center of Brazzaville, were compared to 73 non-sickle cell subjects. Echocardiographic data were collected and laboratory parameters: hemoglobin.

Results The 79 sickle cell patients were distributed in 48 women (60.8%) and 31 men (39.2%), mean age 27.0±9.9 years. The average hemoglobin was 7.8±0.9g/dl. We observed on echocardiography left ventricular dilatation in 12 patients (15.2%), right ventricular dilatation in three patients, left atrial dilatation in 34 patients (43.0%) and right atrial dilatation in 14 patients (17.7%). The ejection fraction of the left ventricle was on average 69.4±7.2%. Left ventricular hypertrophy was present in 68 patients (86.1%). We observed a normal mitral profile in 73 cases (92.4%). Pulmonary hypertension was found in 42 patients (53.2%). The comparison with non-sickle cell population showed a significant difference in favor of sickle cell on the left atrium (22.1 vs 14.1; p=0.000), the right atrium (16.9 vs 12.3; p=0.000), the left ventricle (55.0 vs 46.8; p=0.000), the right ventricle (21.2 vs 17.0; p=0.000), left ventricular mass (138.5 vs 80.0; p=0.000), cardiac output (7.4 vs 5.3, p=0.007) and the maximum flow velocity of tricuspid regurgitation (23.0 vs 19.6; p=0.000).

Conclusion Doppler echocardiography is an essential technic in the assessment of sickle cell patients. It enables the early detection of certain heart complications, especially pulmonary hypertension, making the prognosis of this disease.

Keywords sickle cell disease, echocardiography, pulmonary hypertension.

The author hereby declares no conflict of interest

0034

Dobutamine stress echocardiography predicts the potential of myocardial recovery after revascularization in patients with acute myocardial infarction

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Objectives After a myocardial infarction (MI), patients are at high risk for major cardiovascular events and should benefit from revascularization to recover the infarcted myocardium. The roles of dubutamine stress echocardiography (DSE) have been studied extensively in this indication. The aim of our study is to correlate the results of DSE with the potential for myocardial recovery after revascularization in our patients.

Methods It is a single-center prospective study on 146 patients with an acute coronary syndrome with ST segment elevation (STEMI), thrombolysis or not, admitted to the cardiology department since the beginning of September 2012 to the end of August 2013 and has undergo a pharmacological stress echocardiography with Dobutamine (DSE), an average of 4 weeks after the acute episode, and followed for a year.

Results Of 146 patients, the average age was 55±8 years, 85% men, 36% had hypertension, 41% were diabetic, and 31% had dyslipidemia. Thrombolysis was performed in 63% of patients. 58% of patients had an anterior myocardial infarction. The hospital stay averaged 8±3 days. The left ventricular fraction (LVEF) at stress estimated 48.2±6.8%. 89% of patients have benefited from coronary angiography (130 patients) including 3/4 had single or two-vessel disease. Cardiovascular mortality at 1 year was 3.1% (n=5), 19.2% of MI (n=28). Nearly three-quarters of patients who had a viability at DSE improved their LVEF at 1 year (p=0.004) with a high sensitivity (97.1%) and a good specificity (75%), and nearly two thirds had a viability at DSE improved their wall motion after revascularization (p=0.005).

Conclusion Dobutamine stress echocardiography predicts the potential for recovery after myocardial revascularization in patients with acute myocardial infarction.

Keywords myocardial infarction, dobutamine stress echocardiography, revascularization, viability, myocardial recovery.

The author hereby declares no conflict of interest

0469

Feasibility and usefulness of cardiac magnetic resonance as a complement to echocardiography in the evaluation of heart failure with preserved left ventricular ejection fraction in elderly patients

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Objectives To evaluate the feasibility and usefulness of cardiovascular magnetic resonance (CMR) in the evaluation of heart failure with preserved left ventricular ejection fraction (HFpEF) in elderly patients.

Methods Patients aged 65 and older hospitalized for symptomatic heart failure with a left ventricular ejection fraction (LVEF) >40% underwent both

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